ABSTRACT

THESIS: Symbol Level Security Key Generation in Wireless Network

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Our work proposes a symbol level security generation method in wireless network. We applied Orthogonal Frequency Division Multiplexing (OFDM) model in our solution to transmit specially designed symbols. With the received the symbols, we handled them in a way that noise influence can be eliminated. By using the noise-free received symbols we then calculate the symmetric channel response and encode them into binary values to generate security keys with low bit disagreement rate (BDR). Compared with traditional solutions, our solution was able to have a very high entropy value for the generated security keys. We were able to keep the BDR at a relatively low value. The main contribution of our work is our work can generate several times more bits than the previous work that our solution is based on. In our test settings, we were able to have 2 times more bits generated compared with the previous solution. Theoretically speaking, we could have up to 3 times more bits to be generated than the previous solution.